OBJECTIVES:

- Coordinate land use and transportation planning to better promote Smart Growth
- Preserve and enhance Maryland's natural, community, and historic resources
- Support initiatives that further our commitments to environmental quality

PERFORMANCE MEASURES

MONITORING AGENCY	PERFORMANCE MEASURE	PAGE
MDOT	Transportation-related emissions by region	34
MDOT	Transportation-related greenhouse gas emissions	34
MDOT & MTA	Transportation Emission Reduction Measures (TERMs)	36
MPA	Acres of wetlands or wildlife habitat created, restored, or improved since 2000	35
MVA	Compliance rate and number of vehicles tested for Vehicle Emissions Inspection Program (VEIP) versus customer wait time	33
SHA	Acres of wetlands restored and miles of streams restored	32
SHA	Total fuel usage of the light fleet	33
SHA & MTA	Travel Demand Management	35-36

Maryland's transportation agencies recognize that transportation operates within sometimes delicate ecological boundaries. MDOT pursues projects and operates the transportation system to both minimize environmental impacts and restore environmental conditions. Maryland's *Smart, Green & Growing* initiative provides a framework for addressing transportation challenges and future growth in a more sustainable manner by implementing environmental strategies that are both responsive and adaptive. For example, Maryland's transportation agencies are examining ways to link transportation improvements with community revitalization, economic development, Smart Growth, and environmental restoration efforts to support a more sustainable transportation system.

By expanding access to transportation options—transit, ridesharing, telecommuting, biking, walking, and intercity passenger rail—Maryland's transportation agencies contribute to reducing the use of fossil fuels and lowering greenhouse gas (GHG) emissions. A few key examples of MDOT's efforts include expanding bicycle and pedestrian access, implementing programs to lower single-occupancy vehicle usage (e.g., Commuter Choice Maryland), and transitioning to more "green" transit vehicles. MDOT also supports efforts to coordinate land use at the local level and promotes Smart Growth and Transit-Oriented Development (TOD). These efforts create opportunities to preserve and improve the environment, while strengthening Maryland's economy at the same time. Maryland has made great environmental progress, with passage of the Clean Cars Act, which adopts cleaner car standards beginning with the 2011 model year, and 2009's Greenhouse Gas Reduction Act, which commits to reducing GHG emissions 25% from 2006 levels by 2020. MDOT continues to engage with partner agencies to improve air quality and reduce the State's carbon footprint by conducting analyses in support of the Maryland Climate Action Plan.

KEY INITIATIVES

MDOT

- *Smart, Green & Growing*: Implement programs that support the State's sustainability and Smart Growth agenda.
- Climate Change: Assist in evaluating adaptation and mitigation policy options for reducing Maryland's vulnerability to sea level change and GHG footprint.
- Smart Sites: Support TOD with local and private partners through planning, joint development partnerships, and infrastructure investments.

MAA

- Energy Conservation: Conduct an energy audit at BWI Marshall Airport to establish a baseline for developing conservation goals.
- Recycle: Continue to recycle at least 20% of BWI solid waste.

MPA

- Preservation: Preserve Swann Creek, an undeveloped shoreline area, through local and State Land Trusts, and establish wetland habitats through community partnerships.
- Air Quality: Apply a $3.5 million diesel emissions reduction grant from the U.S. Environmental Protection Agency to fund retrofitting, repowering and replacing cargo handling equipment, drayage trucks, locomotives and harbor craft operating at the Port of Baltimore.
- Energy Efficiency: Install energy efficient equipment (e.g., motion detectors, automatic water dispensers) at MPA facilities.

MTA

- Air Quality: All MTA buses are equipped with particulate traps on the exhaust systems, catching up to 90% of all soot and harmful particles.
- Hybrid Buses: Purchase 100 hybrid diesel electric transit buses, which use 20 percent less fuel and are up to 50% quieter than older diesel buses.
- Green Locomotives: Introduce 26 new MARC "green" locomotives to reduce emissions and fuel consumption.

MDTA

- Water Quality: Engage in public-private partnerships to improve the quality of water flowing into the Chesapeake Bay (e.g., Asquith Creek Oyster Reef).
- Environmental Services Office: Implement environmental standard operating procedures to consistently handle environmental issues.
- Coordination: Implement an integrated environmental management and sustainability approach for all Divisions.

MVA

- Vehicle Emissions Inspection Program (VEIP): Continue program to ensure that registered vehicles comply with Maryland's emission requirements.
- eMVA: Expand MVA alternative service delivery options to reduce trips to MVA offices.
- Energy Savings: Deploy electrical, HVAC and plumbing strategies to reduce energy consumption at the MVA Headquarters complex by 10%.

SHA

- Recycled Construction Materials: Continued to increase the percent of recycled asphalt base used in roadway construction/reconstruction.
- Fuel Usage: Completed conversion to bio-diesel fuel, virtually eliminating the use of diesel fuel at SHA.
- Environmental Beautification: Enhance roadside vegetation and tree planting programs (e.g., planted 152,000 trees along Maryland roadsides, in State right-of-way, and at State parks through the *One Million Tree* initiative).
- Wind Energy: Determine the feasibility of using wind energy to help power SHA facilities (e.g., wind turbine pilot project at the Westminster Maintenance Facility).
- Stormwater Management: Continue to use Best Management Practices (BMP) to safeguard the water quality of local waterways and health of aquatic ecosystems. Ensure proper function of all of the BMP's by performing routine inspection and remediation or retrofit as necessary.

SHA: ACRES OF WETLANDS RESTORED AND MILES OF STREAMS RESTORED

SHA wetland and stream restoration efforts exceed specific project environmental requirements. These efforts are intended to mitigate for past impacts to wetlands and streams due to highway construction projects. Providing wetlands are also among the most effective of SHA's water quality Best Management Practices. SHA's efforts contribute to the Statewide goals of the Chesapeake 2000 Agreement and Maryland's Tributary Strategy Plan for the restoration of Chesapeake Bay. By the end of FY2009, SHA completed 157 acres of wetland improvements and has projects planned that would increase that by 300 acres, to a total of 457 acres, by the end of FY2010. SHA has also completed restoring 4.5 miles of streams.
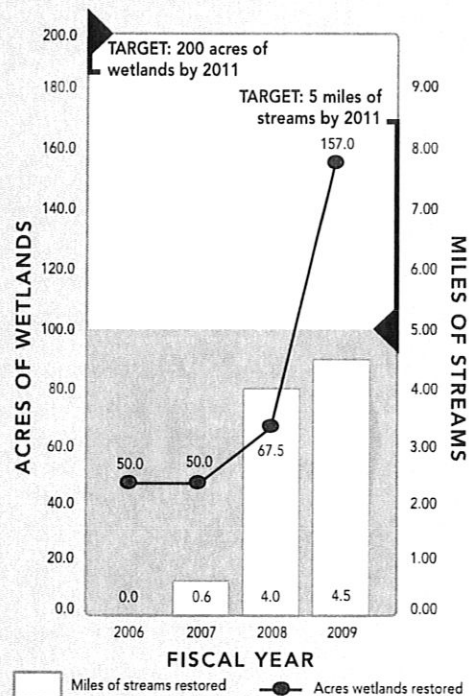
WHY DID PERFORMANCE CHANGE?

- Through FY2009, 157 acres of wetlands were created and 4.5 miles of streams restored toward the overall goal of 200 acres and five miles respectively by 2011
- 3,750 feet of streams were restored
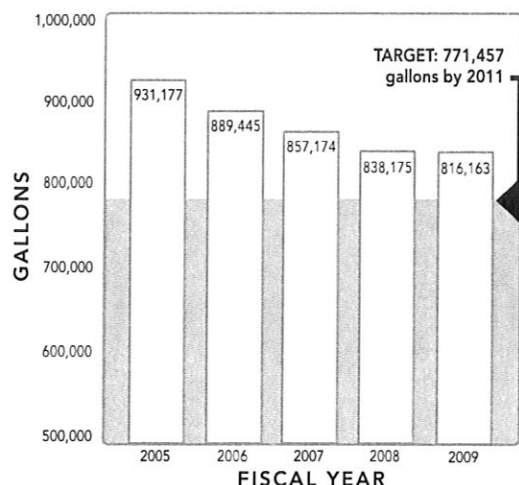- Continued to provide environmental enhancements beyond what is required for project mitigation

WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- A large wetland creation project in Worcester County is under design and construction will be completed by the end of 2010
- Identify funding for 5,000 feet of streams for restoration
- Continue to partner with sister State agencies to provide value-added enhancements to the natural environment through creative and cost-effective solutions
- Plan for a pace for this program, that is tied to funding availability

SHA: TOTAL FUEL USAGE OF THE LIGHT FLEET

This measure is tracked Statewide to monitor success in reducing consumption of gasoline through conservation strategies including scheduled fleet replacements by higher efficiency vehicles.

GALLONS

931,177	889,445	857,174	838,175	816,163	
2005	2006	2007	2008	2009	

TARGET: 771,457 gallons by 2011
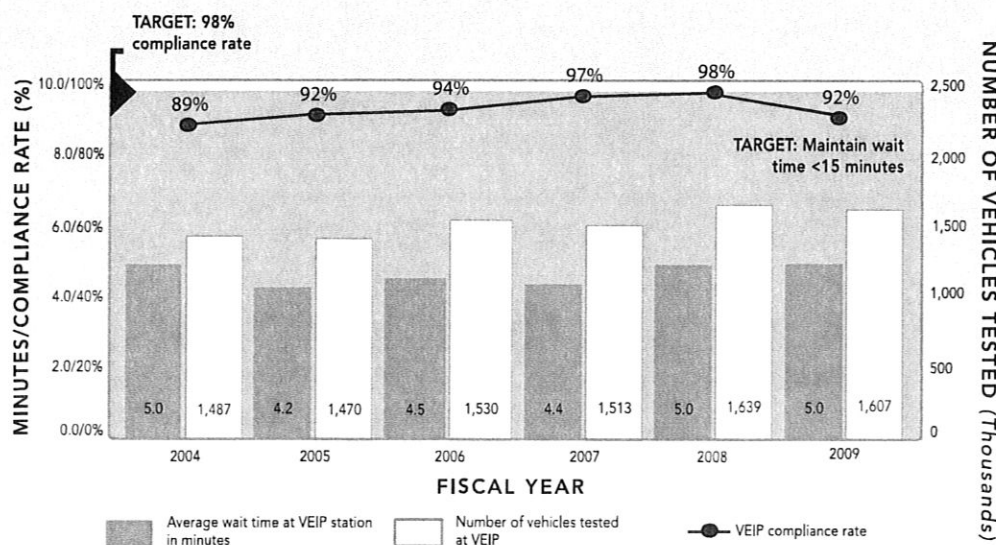
FISCAL YEAR

WHY DID PERFORMANCE CHANGE?

- Met goal to convert all gasoline to 10% ethanol-based (E10) gasoline
- Converted heavy equipment from using diesel fuel to using bio-diesel fuel
- Converted one fueling station to dispense E85 gasoline
- Installed video conferencing to link central offices with eastern and western regions to reduce auto trips for in-person meetings
- Developed automobile idling policy for all employees and consultants that operate vehicles and equipment
- Restructured staffing of construction inspection to assign inspectors on projects that are closer to their homes, reducing travel for these employees

WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Analyze historical trends to determine baseline to inform future fuel usage reduction initiatives
- Acquire smaller, more fuel-efficient vehicles and hybrids as older vehicles qualify for replacement
- Support actions to lower the cost per gallon of E85 fuel to reduce overall fuel costs

MVA: COMPLIANCE RATE AND NUMBER OF VEHICLES TESTED FOR VEHICLE EMISSIONS INSPECTION PROGRAM (VEIP) VERSUS CUSTOMER WAIT TIME*

Monitoring the VEIP testing compliance rate ensures system effectiveness and identifies vehicles exceeding allowable standards. Tracking the average wait time at a VEIP station ensures that the 15-minute average wait time requirement is met. Timely and efficient customer service helps the State meet Federal clean air standards by identifying pollutants and encouraging vehicle maintenance.

MINUTES/COMPLIANCE RATE (%)

TARGET: 98% compliance rate

TARGET: Maintain wait time <15 minutes

NUMBER OF VEHICLES TESTED (Thousands)

	2004	2005	2006	2007	2008	2009
VEIP compliance rate	89%	92%	94%	97%	98%	92%
Average wait time	5.0	4.2	4.5	4.4	5.0	5.0
Number tested	1,487	1,470	1,530	1,513	1,639	1,607

FISCAL YEAR

- Average wait time at VEIP station in minutes
- Number of vehicles tested at VEIP
- VEIP compliance rate

WHY DID PERFORMANCE CHANGE?

- MVA is responsible for monitoring the number of registered vehicles in non-attainment counties and ensuring VEIP testing compliance, but MVA does not control the number of vehicles tested
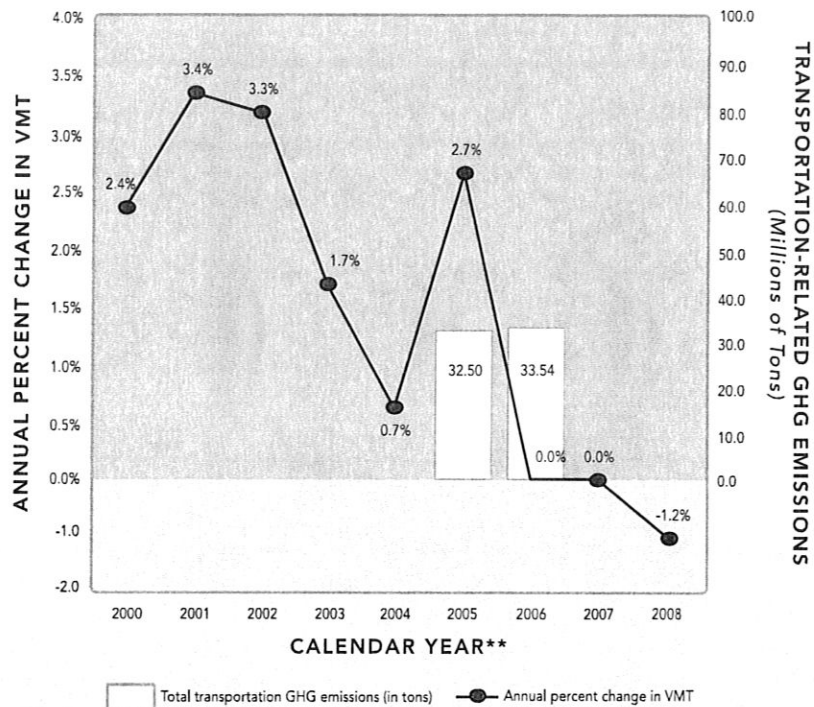
WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Implement new technologies and initiatives to reduce customer wait time
- Continue to monitor registered vehicles in non-attainment counties to ensure VEIP testing compliance
- Fully implement improvements to VEIP, including revising idle test standards for certain model year vehicles and mandatory gas cap testing

* 14 counties offer VEIP tests: Anne Arundel, Baltimore, Baltimore City, Carroll, Harford, Howard, Queen Anne's, Cecil, Washington, Calvert, Charles, Frederick, Montgomery, and Prince George's.

MDOT: TRANSPORTATION-RELATED GREENHOUSE GAS EMISSIONS*

Vehicle miles of travel (VMT) reduction is one of several strategies that MDOT is pursuing to address climate change. Reducing VMT has other potential benefits to Marylanders, such as reduced congestion and improved travel time reliability.

Total transportation GHG emissions (in tons) — Annual percent change in VMT

WHY DID PERFORMANCE CHANGE?

- Increased financial support for alternative modes of transportation at the State and local levels
- Implemented emission-reduction strategies in non-attainment areas to foster transportation alternatives to single occupancy vehicles
- Vehicle emissions decreased nationwide due to improved vehicle technologies and reductions in VMT caused by increased fuel prices

WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Support growth in transit ridership through system enhancements and outreach
- Support GHG reduction strategies recommended by the Maryland Commission On Climate Change
- Support mobile source emission reduction efforts and invest in alternative transportation
- Pursue strategies to meet the GHG emission reduction goals of the Greenhouse Gas Reduction Act of 2009
- Implement the Clean Car Bill requirements and standards passed by the 2007 General Assembly
- Execute regional emission reduction strategies recommended by the Ozone Transport Commission
- Focus growth around transit stations to both increase transit ridership and reduce congestion, sprawl and GHG emissions through TOD

* GHG emissions affect the temperature and climate of the earth's surface. GHG emissions primarily include carbon dioxide, methane, nitrous oxide, carbon monoxide, oxides of nitrogen, and non-methane volatile organic compounds.
** Implemented new methodology in modeling 2006 GHG emissions.

MDOT: TRANSPORTATION-RELATED EMISSIONS BY REGION

Reducing vehicle emissions improves air quality in compliance with Federal regulations and provides health benefits for Maryland residents.

PERFORMANCE MEASURE	REGION	CALENDAR YEAR		TARGET
		2002	2005	
Volatile Organic Compound (VOC) Tons per Day	Baltimore	70.6	55.1	41.2 by 2009
	Washington	116.9	97.4	66.5 by 2009
Nitrogen Oxide (NOx) Tons per Day	Baltimore	177.1	144.5	106.8 by 2009
	Washington	266.7	234.7	144.3 by 2010
Carbon Monoxide (CO) Tons per Day	Baltimore	2,454.1	N/A	1,689.8 by 2015
	Washington	2,589.5	N/A	1,671.5 by 2015
Particulate Matter (PM) Tons per Day	Baltimore	1,043.5	N/A	1,105.4 by 2009
	Washington	1,724.7	N/A	686.97 by 2009

MPA: ACRES OF WETLANDS OR WILDLIFE HABITAT CREATED, RESTORED, OR IMPROVED SINCE 2000*

MPA is in compliance with the various permits that are granted to construct projects needed for MPA customers (e.g., vessel or landside tenants).

TARGET: Mitigate projects as required by Federal, State and local statutes

CALENDAR YEAR
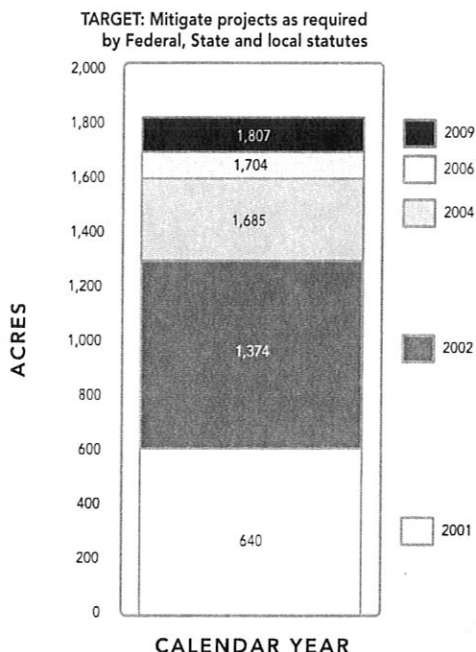
* Represents cumulative mitigation efforts by MPA.

WHY DID PERFORMANCE CHANGE?

- Cumulative mitigation efforts increased 103 acres in CY2009 due to Masonville Cove mitigation and Upland (phase I)
- Worked with local communities to develop mitigation for the Masonville DMCF to include wetlands and upland habitat and a nature center

WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- When required to mitigate for a construction project, MPA seeks to create and improve wildlife habitat wherever appropriate and in conformance with permit requirements
- Environmental enhancements will continue at Masonville eastern and peninsula uplands
- Over 1,600 trees and 1,900 shrubs and six acres at Hawkins Point will have invasive species removed

TRAVEL DEMAND MANAGEMENT

Maryland's transportation agencies offer citizens a broad breadth of travel alternatives through strategies known as Travel Demand Management (TDM). TDM strategies are designed to lower single-occupancy vehicle usage and VMT through programs that promote carpooling, car sharing, flexible work hours and teleworking. These strategies result in a host of benefits including reduced peak-period congestion, lower parking demand, energy savings, lower commuting costs, and cleaner air.
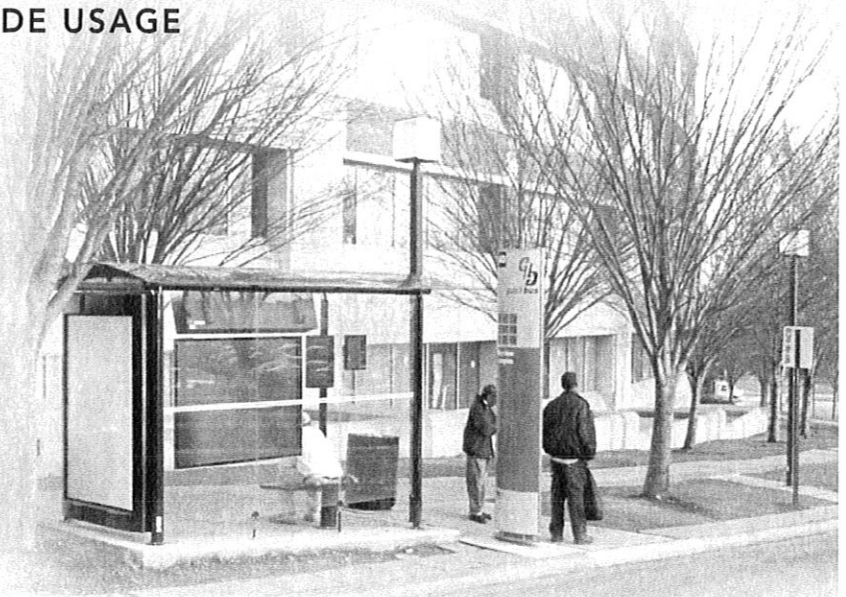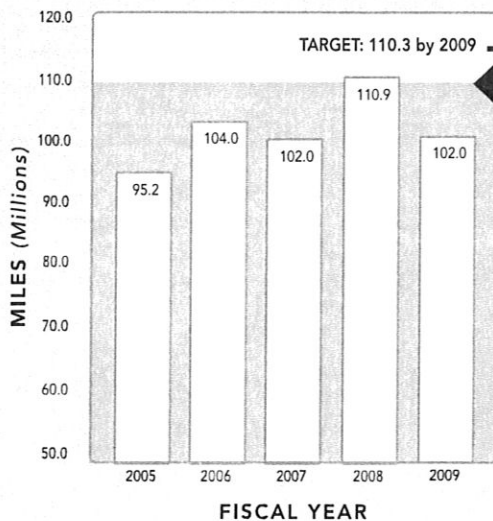
Commuter Choice Maryland, Commuter Connections (in the Washington, D.C. metropolitan area), Statewide park-and-ride facilities, and MDOT's Telework Partnership—which offers professional telework consulting services to Maryland employers—are examples of the TDM programs Maryland supports. Park-and-ride facilities are strategically located throughout the State, typically near transit, to reduce driving alone and encourage commuter carpooling and vanpooling. Facility usage fluctuates due to the economy; weather conditions; special events; emergencies; delays or shutdowns of parallel lines or modes; maintenance and repair; storage of plowed snow; increases in frequency, service, and capacity; and other factors.

STATEWIDE PARK-AND-RIDE FACILITIES (ESTIMATED) 2008		
AGENCY	TOTAL SPACES	AVERAGE WEEKDAY UTILIZATION
SHA	11,925	7,285
MTA Operated	35,000	20,000
Transit Multipurpose*	7,704	5,541

* Includes facilities operated by MTA, Amtrak, WMATA, Penn Station in Baltimore, and Union Station in Washington, D.C.

SHA: REDUCTION IN VEHICLE MILES TRAVELED THROUGH PARK-AND-RIDE USAGE

TARGET: 110.3 by 2009

FISCAL YEAR	MILES (Millions)
2005	95.2
2006	104.0
2007	102.0
2008	110.9
2009	102.0

2008-2009 MDOT & MTA TRANSPORTATION EMISSION REDUCTION MEASURES (TERMs)*

PROGRAM	PROGRAM DESCRIPTION	DAILY REDUCTION IN VEHICLE TRIPS*	DAILY REDUCTION IN VEHICLE MILES OF TRAVEL*
Guaranteed Ride Home	Provides transit users or carpoolers up to four rides home per year in a taxi or rental car in the event of an unexpected personal or family emergency	8,680	227,428
Employer Outreach (Including Employer Outreach for Bicycles)	Supports marketing efforts to increase employee awareness and use of alternatives to driving alone to work every day	59,351	970,301
Integrated Rideshare	Promotes traveler information and other alternative transportation services to employers and to the general public. Commuter information system documentation is provided with comprehensive commute information, to include regional TDM software updates, transit, telework, park-and-ride, and interactive mapping	7,363	199,079
Commuter Operations and Ridesharing Center	Updates and maintains the Commuter Connections database for ride-matching services and provides information on carpooling, transit, Guaranteed Ride Home services, and alternative mode choices for the Baltimore/Washington metropolitan region	17,950	575,237
Telework Resource Center	Provides information to employers on the benefits of telecommuting and assists in setting up new or expanded telework programs for employers	21,866	413,703
Mass Marketing	Promotes and communicates the benefits of alternative commute methods to single-occupant vehicle commuters through the media and other wide-reach communications	2,577	69,274
MTA College Pass	Offers a subsidized monthly transit pass to full- or part-time students enrolled in greater Baltimore metropolitan area colleges or universities	2,752	14,615
MTA Commuter Choice Maryland Pass	Baltimore region program that allows employers to purchase transit passes and vouchers for their employees. Employers can subsidize these for their employees or allow employees to purchase passes or vouchers with pre-tax income	8,818	120,900
Transit Store in Baltimore	Provides customer access to transit information and for purchases of transit passes. Some 15-20% of total transit pass sales occur through this outlet	2,727	37,383

* Emission factors for the 2008-2009 time period changed due to the changes in the region's vehicle fleet mix and the vehicle trip and vehicle miles of travel changed for some of the measures due to the spike in gasoline prices during the evaluation period. Overall, the impacts shown reflect the latest data available for each of the measures.